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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/904,875	07/16/2001	Takamitsu Asanuma	110108	1757

25944 7590 04/18/2003

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EXAMINER

NGUYEN, TU MINH

ART UNIT	PAPER NUMBER
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3748

DATE MAILED: 04/18/2003

19

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/904,875

Applicant(s)
Asanuma et al.

Examiner
Tu M. Nguyen

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3748



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Mar 31, 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2-4 is/are allowed.
- 6) ☒ Claim(s) 1, 5, and 6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on Apr 30, 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

1. An Applicant's Request for Continued Examination (RCE) and an Applicant's Amendment filed on March 31, 2003 have been entered.

Claims 7 and 8 have been canceled; and claims 1-5 have been amended. Overall, claims 1-6 are pending in this application.

Drawings

2. The amended drawings filed on April 30, 2002 have been approved for entry. Upon allowance of this application, formal drawings with the approved changes must be submitted.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

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4. Claims 1, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seto et al. (Japan Publication 6-117221) in view of Maaseidvaag et al. (U.S. Patent 6,167,696).

Re claims 1 and 5, as shown in Figures 1 and 9 and indicated in the translated Abstract, Seto et al. disclose a device for purifying the exhaust gas of an internal combustion engine, comprising:

- a NO_x absorbent (20) arranged in the exhaust system, which carries an oxidation catalyst (a NO_x absorbing agent) for absorbing and reducing NO_x, the catalyst absorbing NO_x when the air-fuel ratio in the surrounding atmosphere thereof is lean and releasing the absorbed NO_x when the air-fuel ratio is stoichiometric or rich;

- a catalytic apparatus (17) for purifying NO_x arranged in the exhaust system upstream of the NO_x absorbent, the catalytic apparatus carries a catalyst (a NO_x absorbing agent) for absorbing NO_x when the air-fuel ratio in the surrounding atmosphere thereof is lean and releasing the absorbed NO_x when the air-fuel ratio is stoichiometric or rich; and

- control means (50, 11) for making the air-fuel ratio in the catalytic apparatus rich to release NO_x therefrom and purify the released NO_x by reduction.

Seto et al., however, fail to disclose that the NO_x absorbent can also function as a particulate filter.

As shown in Figures 1 and 4, Maaseidvaag et al. teach that it is conventional in the art to use an integral NO_x/ particulate filter (22) which carries a catalyst (54) (lines 33-39 of column 6) for absorbing and reducing NO_x. It would have been obvious to one having ordinary skill in the

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art at the time of the invention was made, to have replaced the NOx absorbent in Seto et al. with the integral NOx/particulate filter taught by Maaseidvaag et al., since the use thereof would have provided an effective means to eliminate soot from the exhaust gas of internal combustion engines.

Re claim 6, in the modified device of Seto et al., the integral NOx/particulate filter carries an oxygen absorbing agent (a precious metal or an alkaline metal in the catalyst (54) of Maaseidvaag et al. is known as an oxygen absorbing agent).

Allowable Subject Matter

5. Claims 2-4 are allowed.

Prior Art

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of two patents:

- Dettling et al. (U.S. Patent 5,100,632) disclose a diesel particulate filter coated with a catalyst to lower an ignition temperature of collected particulates.

- Sasaki et al. (U.S. Patent 5,937,639) disclose two NOx absorbents in series (see Figure 20).

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Communication

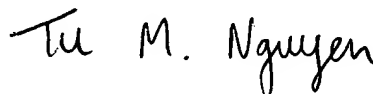
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (703) 308-2833.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (703) 308-2623. The fax phone number for this group is (703) 308-7763.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1148.

TMN

April 16, 2003



Tu M. Nguyen

Patent Examiner

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THOMAS DENION
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700